

smoothelin (C-8): sc-376902

BACKGROUND

The cytoskeletal protein smoothelin is highly conserved among vertebrates and is expressed exclusively by contractile smooth muscle cells where it localizes to the filament network. Smoothelin associates with actin stress fibers but does not interact with desmin. At least two isoforms of smoothelin are produced by alternative splicing. The short isoform lacks amino acids 1-456 at the amino-terminus of the long isoform. The short isoform is expressed in visceral muscle tissue, including intestine and stomach, but not in brain, while the long isoform is expressed in all vascularized organs. In the vascular system, smoothelin expression is limited to large veins and arteries capable of pulsatile contraction. As a marker for the highly differentiated contractile smooth muscle cell, smoothelin expression is useful for studying vascular malformation and injury. The gene encoding human smoothelin maps to chromosome 22q12.2.

REFERENCES

1. van der Loop, F.T., et al. 1996. Smoothelin, a novel cytoskeletal protein specific for smooth muscle cells. *J. Cell Biol.* 134: 401-411.
2. van Eys, G.J., et al. 1997. Smoothelin expression characteristics: development of a smooth muscle cell *in vitro* system and identification of a vascular variant. *Cell Struct. Funct.* 22: 65-72.

CHROMOSOMAL LOCATION

Genetic locus: SMTN (human) mapping to 22q12.2; Smtn (mouse) mapping to 11 A1.

SOURCE

smoothelin (C-8) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 831-869 near the C-terminus of smoothelin of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

smoothelin (C-8) is available conjugated to agarose (sc-376902 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376902 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376902 PE), fluorescein (sc-376902 FITC), Alexa Fluor® 488 (sc-376902 AF488), Alexa Fluor® 546 (sc-376902 AF546), Alexa Fluor® 594 (sc-376902 AF594) or Alexa Fluor® 647 (sc-376902 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376902 AF680) or Alexa Fluor® 790 (sc-376902 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376902 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

smoothelin (C-8) is recommended for detection of smoothelin long and short isoforms of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

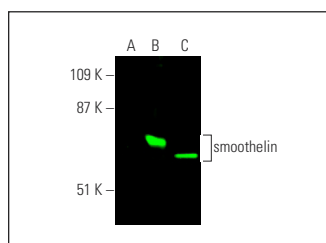
smoothelin (C-8) is also recommended for detection of smoothelin long and short isoforms in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for smoothelin siRNA (h): sc-36512, smoothelin siRNA (m): sc-36513, smoothelin shRNA Plasmid (h): sc-36512-SH, smoothelin shRNA Plasmid (m): sc-36513-SH, smoothelin shRNA (h) Lentiviral Particles: sc-36512-V and smoothelin shRNA (m) Lentiviral Particles: sc-36513-V.

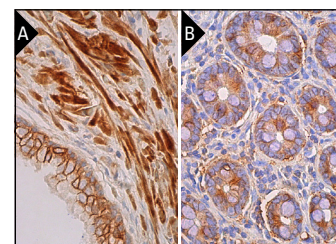
Molecular Weight of smoothelin short/long isoform: 59/110 kDa.

Positive Controls: COLO 320DM cell lysate: sc-2226, human smooth muscle extract: sc-363778 or smoothelin (h): 293T Lysate: sc-113663.

DATA



smoothelin (C-8): sc-376902. Near-infrared western blot analysis of smoothelin expression in non-transfected 293T: sc-117752 (A) and human smoothelin transfected 293T: sc-113663 (B) whole cell lysates and human smooth muscle tissue extract (C). Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.



smoothelin (C-8): sc-376902. Immunoperoxidase staining of formalin fixed, paraffin-embedded human prostate tissue showing cytoplasmic and membrane staining of glandular cells and cytoplasmic staining of smooth muscle cells (A) and human colon tissue showing cytoplasmic and membrane staining of glandular cells and cytoplasmic staining of endothelial cells (B).

SELECT PRODUCT CITATIONS

1. Rodríguez, A.I., et al. 2015. MEF2B-Nox1 signaling is critical for stretch-induced phenotypic modulation of vascular smooth muscle cells. *Arterioscler. Thromb. Vasc. Biol.* 35: 430-438.
2. Biber, J.C., et al. 2023. Survivin as a mediator of stiffness-induced cell cycle progression and proliferation of vascular smooth muscle cells. *APL Bioeng.* 7: 046108.

RESEARCH USE

For research use only, not for use in diagnostic procedures.